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ONIONS FROM SEED.

REVISED FOR 1908.

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W. ATLEE BURPEE & CO., Seed Growers, Philadelphia, Pa., U. S. A.

This is one of a series of LEAFLETS ON CULTURE, published for FREE Distribution to planters of BURPEE'S SEEDS,—but is mailed to those who order seeds of which the leaflet treats. These leaflets are all practical, giving the results of actual experience gained at BURPEE'S FORDHORP FARMS,—so famous as the largest and most complete Trial Grounds in America.

Should any of our customers desire to ask other questions, we shall be pleased to send, without charge, a personal "Letter of Advice,"—but must request that first you read carefully the leaflet,—so as not to burden us with repeating, by letter, instructions that are given herein.

It is our aim to supply not only the BEST SEEDS THAT CAN BE GROWN, but also to tell plainly the best methods of cultivation.



PHILADELPHIA, January 1, 1908.

W. ATLEE BURPEE & CO.

Practically all the market crops of onions (excepting for very early use), as well as a considerable portion of those raised for home use, are now grown direct from the seed in a single season. This method is much less expensive and less laborious than the old plan of sowing the seed in the spring to produce small onions or sets which have to be carried over and planted out again the following spring to make large onions for market. The labor required to thin out and hand-weed the young plants in the early stages of growth is no greater than would be required to produce harvest and store the small onions or sets; the expense for seed is, of course, considerably less; the soil can be made to produce a full crop of onions each year, instead of being occupied for two seasons, and the onions ripening the last of August or early in September come in just right for late fall and winter markets when the bulbs are in the greatest demand.

Small onions or sets are grown from seed planted quite thickly and grown without thinning out. These should ripen when from one-half to three-quarters of an inch in diameter, and are used for planting in well-drained soil in the fall to produce green bunching onions early in the spring, or are kept over winter to plant out early in the spring for an early summer crop of large bulbs.

In the South onions are very largely planted during the fall, as they continue in growth during the winter months, making the early crop of bulbs which are found in the northern markets early in the spring. While sets grown the preceding spring have been very generally used for this crop, they can be raised quite as readily from seed sown directly in the rows where the onions are to grow and ripen if the seed is sown about six weeks earlier than you would plant the small sets. This early start will give as large plants as would be obtained from the sets. For this early crop in the South the Italian and so-called Bermuda varieties were used almost exclusively until the introduction of Burpee's Australian Brown and Burpee's Golden Globe, which have more solid flesh and greater weight as well as the best keeping qualities.

The early onions from the South are generally known as "Bermuda" onions and have an exceptionally sweet, mild flavor. EARLY ROSE, a variety which we introduced in 1907, is one of the quickest growing of this type and produces a fine, large, flattened onion of the sweetest flavor. For early fall planting in the South the "Early Rose" will make larger bulbs and ripen equally as early as the Bermudas, while in the North it will produce onions in August three to four inches in diameter from seed sown early in the spring.

Early green bunch onions can also be grown direct from the seed in the Northern States by selecting and preparing a well-drained plot of ground early in September and sowing the seed thinly in the rows where the young onions are to be grown. The onion plant is very hardy, making a good growth during the cool fall months and starting a new growth very early in the spring where planted in a well-drained soil or in a bed slightly elevated above the surrounding surface, so that any surplus moisture from heavy rains or melting snows will drain away quickly. By sowing the seed early in September you get from four to six weeks' earlier start in growth than you do from the sets or small onions which are usually planted out in October, and effect a very large saving in the cost of the sets or the labor and expense of growing them the preceding spring. For green bunching, the globe or ball-shaped varieties are the most desirable, as the young plants grow with thicker or heavier stalks than the early flat varieties.

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HOW TO PREPARE THE SOIL AND PLANT THE SEED.

The bed or field should be prepared as early in the spring as the soil can be worked in a fine, loose condition, and made quite rich with well-rotted manure, poultry droppings, wood-ashes, or commercial fertilizers. These should be spread broadcast on the freshly dug or plowed surface, thoroughly worked in and mixed with the surface soil. Rake off all stones, lumps, and clods, making the surface as level and fine as possible before sowing the seed.

In the small garden mark off the bed in rows eight to twelve inches apart, making the drill one-half an inch deep; sow the seed thinly in the drill and cover with fine soil.

When the soil is at all dry at the time of sowing the seed, the covering of fine soil should be pressed firmly down over the seed by using a small roller or treading the row down with the sole of the shoe; or a board may be laid on the row after covering, and by walking along the board the soil will be firmly compacted about the seed; this is necessary to insure a good germination.

In field culture on a large scale, similar careful preparation is necessary before sowing the seed, but, as the same field may be planted with onions for several successive seasons, the cost of preparation may be divided by the several crops grown on the carefully cleared land. The only objection to planting onions in the same ground for several seasons is the danger of the soil becoming inoculated with some fungous disease which might be fatal to the young plants. It is the practice of onion growers in some sections to put waste tobacco stems or other refuse tobacco on the onion land in the fall, using 1000 to 2000 lbs. of stems to the acre; these are plowed under in the fall and not only make an excellent fertilizer for the growing crop, but also serve to keep the soil free from injurious insects.

As considerable labor is required in growing a crop of onions for market, only so much land should be planted as can be heavily fertilized, well prepared, and well tended through the growing season. In sowing even a limited area for field culture it will be of the greatest advantage to use a good seed-drill. In a well-prepared seed-bed a good drill will sow the seed as rapidly as a man can walk, more thinly and evenly than can be done by hand, not only saving time and seed, but also greatly lessening the subsequent labor of thinning out the young plants. Four pounds of seed is usually sufficient to plant rows fifteen inches apart, but with the heavy manuring and careful preparation required for a good crop of onions it would be better to plant six to seven pounds of seed rather than have any gaps or misses in the rows.

The distance between the rows in laying out the onion-bed should be governed by the tools with which the bed is to be cultivated. A good wheel-hoe with sharp, scraping hoes or blades traveling just beneath the surface of the soil, and fine finger-like teeth to break up any light crust that may form, is most serviceable, and the bed can be quickly worked with rows twelve to fifteen inches apart. To facilitate the working of the onions with a wheel-hoe or small cultivator, it is necessary that the rows should be straight and at an even distance apart, so that the cutting blades may be run close to the row without danger of cutting off the young plants; a drill is most useful in attaining this, as it not only opens the row or shallow trench for the seed, drops the seed, covers and rolls it in, but a small guide-rod at the side marks where the next row is to be planted. The drill can be regulated to sow seed in varying degrees of thickness, and at different depths, and can be adjusted quite easily by making trial sowings on the bare floor or a sheet of paper before starting to sow in the field.

In small garden-beds the rows may be planted even more closely, to be worked with hand-hoes having small blades, but paths should be left every few feet for ready passage in working the rows.

CULTIVATION.

As previously stated, one of the most important points in growing a crop of large bulbs is to get the seed sown *just as early in spring as possible*. As soon as the young seedlings start sufficiently to show the rows cultivation should be begun, either with the wheel-hoe or with a small garden-rake, stirring the soil between the rows to destroy any weeds that may appear, and by keeping it loose and fine, encouraging the most rapid growth.

Weeds are to be dreaded and avoided in the bed of young onion seedlings, and nowhere is the adage of "A stitch in time saves nine" more applicable. The weeds should never be allowed a chance to start. In hoeing, work as closely to the row as possible without disturbing the young seedlings, and when these are well started (say, when from three to four inches high) the labor of thinning out should be begun. To do this properly requires the worker to travel on hands and knees close to the row. Slightly loosen the soil, and thin out the young seedlings so that they will stand about one to two inches apart in the row, leaving only the strongest plants and disturbing them as little as possible, but removing entirely those pulled out; for if the tops are merely broken off the roots will start again, making only small bulbs, and preventing the crop from ripening evenly and all at one time.

Varieties which make only small onions may be left to stand more thickly in the row, while for the *Prize-Taker*, large Italian varieties and even American onions, when wanted of the largest size, more space should be left between the plants. As soon as the young plants are thinned the bed should be freshly hoed. With constant attention to hoeing at the proper time almost all the labor of hand-weeding may be avoided.

THE NEW ONION CULTURE.

This method originated with MR. T. GREINER, of New York State, one of the most successful market gardeners, and is fully set forth in our book, "ONIONS FOR PROFIT," price 30 cents. It consists in sowing the seed early in the spring in a cool greenhouse or in a hot-bed, the latter being preferable, as the plants may be more readily hardened off as the weather becomes warmer. Seed should be planted during February or early in March, to furnish plants for setting during the latter part of April, and should be sown quite thinly in rows two to three inches apart; for, unless the young plants are strong and stocky, the extra labor of starting them thus early and transplanting will be entirely lost. If the seed comes up too thickly they should be thinned out so as to leave a small, clear space between each plant; and if they grow too tall and weak they may be made to grow more stocky by shearing off the top two inches above the soil.

When the trees are starting out in leaf prepare the onion-bed or field in the same way as for sowing the seed, and transplant the young seedlings to the rows, setting them two to three inches apart in the row.

The advantage of this method is that a crop of onions may be ripened five to seven weeks in advance of those grown from seed sown in the open ground, and generally finer and larger bulbs may be had. It also saves all the additional extra seed that has to be sown to be sure of securing a satisfactory stand. This method is not recommended for growing the ordinary market onions, but is especially desirable for producing the very large, mild, light-brown onions which are marketed in small crates in the fall under the name of "Spanish Onions." The best varieties to plant for this purpose are *Burpee's Gigantic Gibraltar* and the American-grown *Prize-Taker*. These make finer onions, equally as large, and ripen more evenly than the Italian varieties.

The culture of onions started by either method is the same, and consists of encouraging the strongest and most rapid growth by constant cultivation; the soil must be kept clean of weeds even when the tops are too large to admit of working with the wheel-hoes.

HARVESTING.

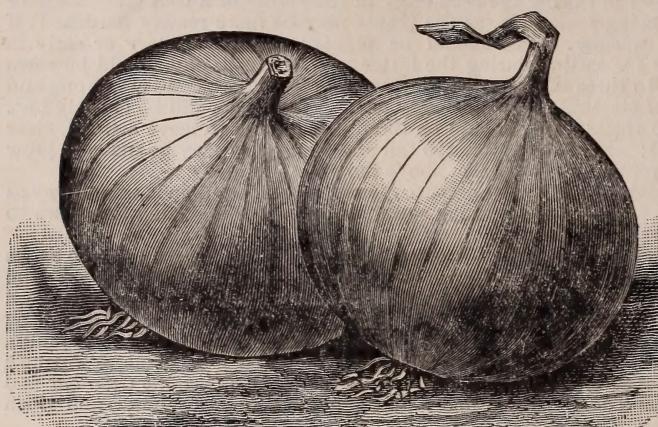
When the tops or leaves begin to turn yellow and die down the onions should be pulled and left lying in the row even if a portion of the plants are still green and growing. The onions should have reached good market size, and in a favorable season nearly all the plants will die down or ripen at about the same time. A dry time should be chosen when the onions can be left on the ground until thoroughly dried, which will take about a week under ordinary conditions. White-skinned or light-colored onions should be gathered into small heaps at the end of the second day and so arranged that they will be protected from the sun by the leaves or tops, otherwise the onions may become dark and discolored. If a rain comes while the onions are drying, turn them over as soon as it becomes clear again, so that they may dry out more quickly. When perfectly dry, remove a portion of the tops, but leave a good length of stem and the roots attached to the bulb; discard all soft or poorly ripened bulbs and gather them in baskets or ventilated crates. They should be stored in a cool, well-aired loft or cellar, or spread out thinly in slatted bins or in small heaps on the floor of a well-ventilated room or shed. Keep them from the light, but allow plenty of air, keeping them just above the freezing point during the severe winter months. Do not remove the dead or dried stem or the loose outer skins until you are ready to use or put them on the market. If you do not have a ventilated shed or loft for early storage, the crates containing the bulbs can be stacked outdoors, leaving suitable air spaces and covered with a few inches of hay or straw, until cold weather, when they should be transferred to the winter storage.

GROWING SMALL "SET" ONIONS.

The seed for the small sets grown for fall or spring planting is sown in the spring under the same conditions as specified for the crop of large onions, and while it is not necessary to get the seed sown as early in the spring, an early planting will give the best results in growth and germination. To produce these small bulbs the seed is sown very thickly in a broad, shallow drill or row, using from forty to sixty pounds of seed for an acre of land or an ounce for a row twenty-five to fifty feet in length. The seed is usually sown so that the young plants stand closely together in a row from two to four inches in breadth, leaving space between the rows for cultivation with the hoes or wheel-hoes. Weeds and grass coming up in the row must be pulled out by hand while quite small, so as not to pull up or disturb the young onion plants. When the small bulbs reach the proper size ripening may be hastened by bending down the tops, which is done by running a small light roller or rolling an empty barrel along the row. When the tops die down, dig up the bulbs and allow them to dry in the sun for a few days, then spread them out in large, shallow, ventilated crates and store in a cool shaded place. When thoroughly dried they can be cleaned in a revolving barrel or slatted cylinder, and should be passed through a wire sieve having a three-quarter inch mesh, as the larger bulbs would be liable to run to seed if planted. These larger bulbs, which will not pass through the sieve, can be sold for pickling or used on the table; they are also useful to plant in the fall for the earliest scallions.

American ONIONS,—Yellow Varieties.

The most popular Onion in our Eastern markets is the *Yellow Danvers*. This grows to a good size; the skin is a pale straw-yellow, and the flesh crisp and white. The onions ripen well, are excellent keepers and of mild flavor. The favorite type of this variety is the *YELLOW GLOBE DANVERS*, making a nearly ball-shaped onion with all the fine character of the flat strains. The *Yellow Strasburg*, or *Dutch*, is similar to the flat *Yellow Danvers*, excepting that the coloring is deeper and the flavor rather stronger. These two varieties are largely planted to produce the *Philadelphia Yellow Onion Sets*. The *SOUTHPORT YELLOW GLOBE* grows rather larger than the *Yellow Globe Danvers*, and is an excellent keeper when well ripened, but, like all true globe-shaped onions, is later in maturing. The *AMERICAN-GROWN PRIZE-TAKER* is a large, globe-shaped onion of very mild flavor; only the very thin skin is yellow, the flesh being pure white, very tender and crisp. In cool, moist locations the *Prize-Taker* furnishes



YELLOW GLOBE DANVERS ONIONS.

the large, pale-brown onions, which are sold in crates in the fall as Spanish Onions. While in dry, hot locations they do not grow to such large size, *Prize-Takers* are always mild and of fine form; it is best to market the bulbs during the fall, as they do not keep well through the winter.

Our new *GOLDEN GLOBE* makes a beautiful and splendid keeping onion about the size of the *Globe Danvers*, but a little more elongated in form and slightly darker or richer in color. This variety has an extremely small or slender neck, where the top joins the bulb, which insures early and even ripening and best keeping quality in the bulbs.

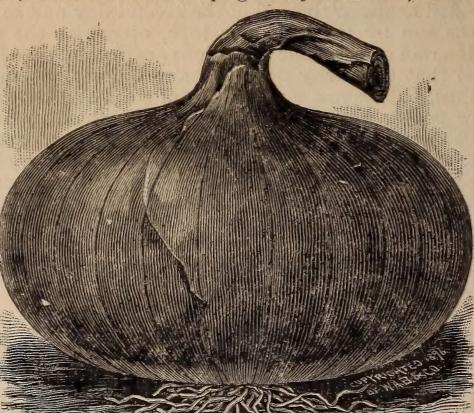
American ONIONS,—Red Varieties.

Our *AUSTRALIAN BROWN*, although not a true red variety, is a deep, rich brown. It is not only the earliest ripening variety producing bulbs of good size, but is also the best keeping variety we know of,—bulbs of this variety having been kept in fine condition until the next year's crop was gathered. Seed of *Australian Brown* should be planted as early as possible, or the onions will ripen prematurely. *Australian Brown* is not so "thoroughbred" as our American varieties and even the best seed will throw some "off-colors."

EXTRA EARLY RED is a flat, deep-red onion, a good cropper, and an excellent keeper. This variety is especially desirable for wet, mucky soils. THE *RED WETHERSFIELD* is the standard large red onion, growing to a very large size from seed in a single season, and being a flat onion ripens evenly and well. *SOUTHPORT RED GLOBE* is a most handsome ball-shaped onion of the largest size, only slightly later in ripening than the *Wethersfield*.

American ONIONS,—White Varieties.

All the white varieties are highly esteemed and bring the best market prices, as they are very mild and sweet in flavor, and of snowy whiteness when prepared for the table. The *White Silverskin*, or *WHITE PORTUGAL*, is the standard white variety, and produces fine, large bulbs from seed the first season. *SOUTHPORT WHITE GLOBE* makes large ball-shaped onions of especially fine, mild flavor that always bring the highest market price. Like the other large globe-shaped onions, it is slightly later in ripening than the flat sorts.



BURPEE'S AUSTRALIAN BROWN ONION.

The *Earliest White Queen* makes a small, flat, silvery-white onion, ripening very early when only about one inch in diameter and is highly esteemed for pickling. A large crop can be grown on a limited area, the seed being sown rather thickly and the plants allowed to grow as they come up in the row. *BURPEE'S MAMMOTH SILVER KING* makes a very large, flattened onion like the *White Portugal*, but grows to a much larger size. *White Italian Tripoli* is similar in type and color, but earlier in season and exceptionally sweet in flavor. The *Giant Rocca* is a large globe-shaped onion with brownish-red skin.

The finest of the large European varieties for spring planting is *BURPEE'S GIGANTIC GIBRALTAR*,—a light-brown, thin-skinned, globe- or ball-shaped bulb of very large size, larger and more evenly globe shaped than the *Prize-Taker* which it resembles in growth and season. The flesh of this onion is crisp and white, extremely mild and sweet, and can be eaten raw like an apple.